

Remarks:

Applicants acknowledge receipt of the Office Action of February 25, 2009, in which the Examiner rejected the claims; claims 1, 2 and 4 are rejected under 35 USC 103(a) as being unpatentable over US 4,669,650 Moe in view of US 2,604,569 Denneen; claims 5-9 are rejected under 35 USC 103(a) as being unpatentable over Moe in view of Denneen and further in view of JP 03-243286 Masakatsu et al.; claims 10-12 are rejected under 35 USC 103(a) as being unpatentable over Moe in view of Denneen, Masakatsu et al. and US 3,941,299 Godfrey.

Applicants respectfully traverse the rejections for the reasons set out below.

Rejection of claims 1, 2 and 4 over Moe in view of Denneen

In making this rejection, the Examiner relies on Moe , which teaches forge welding of a sloping tubular end, and on Denneen, which teaches the use of convex and concave shapes on the ends of solid rods that are to be butt welded.

Applicants have amended claim 1 to require that:

- each tubular includes an end face that is parallel to a plane normal to the axis of the tubular and defined by the wall thickness of the tubular,
- the end face of the one of the tubulars has an annular convex shape,
- the end face of the other tubular has an annular concave shape that is complementary to and intermeshes the convex shape, and
- the convex shape has a sloping configuration such that the average diameter D(t) of the tip of the convex shape is different than the average diameter D(b) of the tubular wall as measured at the center of the wall thickness. (bullets added for discussion).

These amendments do not constitute new matter, as they are supported by the specification as-filed, and in particular by the original Figures, which form a part of the specification.

The first limitation clarifies that the end face recited in the claims is not circumferential and corresponds to the wall thickness of the tube. The second and third limitations clarify that the concave and convex shapes formed on the respective end faces are annular.

Together, these recitations clearly distinguish the claims over Moe and Denneen, as neither reference teaches or suggests the use of an annular intermeshing shape for the end faces.

Still further, the balance of claim 1 relates to the selection of D(t) and D(b). The Examiner states that it would have been obvious to optimize D(t) and D(b). However, neither Moe nor Denneen provides any motivation for such an “optimization,” as Denneen does not have a either a D(t) or D(b) and the end faces of Moe do not intermesh, making the respective diameters immaterial. Finally, nothing in the references teaches or suggests the use of annular intermeshing features on tubular end faces.

For all of these reasons, Applicants respectfully submit that the claims recite an invention that is novel and non-obvious in view of the art of record.

Rejection of claims 5-9 over Moe in view of Denneen and Masakatsu et al.

Because claim 1 is patentable over the art of record, Applicants respectfully submit that claims 5-9 are allowable over this combination of references.

Rejection of claims 10-12 over Moe in view of Denneen, Masakatsu et al., and Godfrey

Because claim 1 is patentable over the art of record, Applicants respectfully submit that claims 10-12 are also allowable over this combination of references.

Conclusion

Applicants thank the Examiner for the thoroughness of the Office Action. Applicants believe that the present amendment and arguments place the case in condition for allowance.

If it would be considered helpful in resolving any issues in the case, the Examiner is encouraged to contact the undersigned at the number below.

Respectfully submitted,
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